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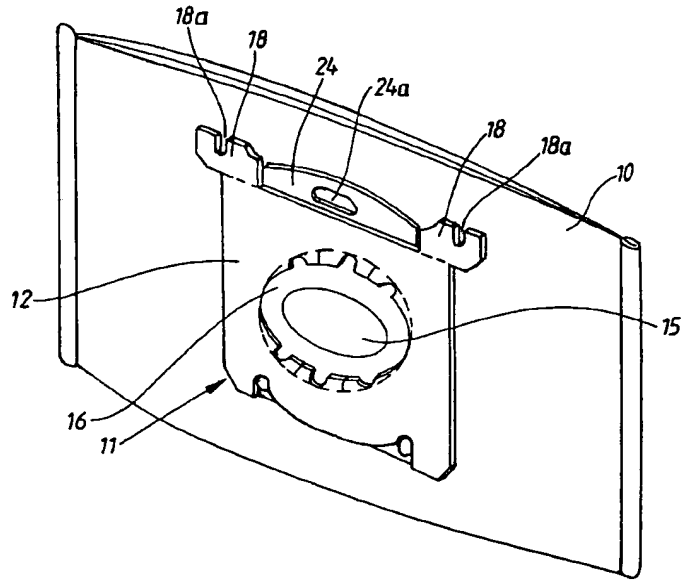
(54) Title: DUST CONTAINER FOR A VACUUM CLEANER



(57) Abstract: A dust container comprising a bag (10) of air permeable, filtering material having an opening which dust-laden air flows into the bag, and a collar (11) connected to the bag having a collar opening that is mainly coaxial with the gag opening. The collar is provided with two opposite, mainly parallel, edge parts, an upper edge part and a lower edge part, and the upper edge part is provided with a handle portion (24) by which the dust container is pulled out of the vacuum cleaner. The collar close to the upper edge part is provided with at least one tab (18) extending sideways of the parallel edge parts and which by a bending line (19) is connected to the collar, and several recesses are positioned at the upper or lower edge part.

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

DUST CONTAINER FOR A VACUUM CLEANER

This invention relates to a dust container comprising a bag of air permeable, filtering material having an opening through which dust-laden air flows into the bag and a collar connected to the bag having a collar opening that is mainly coaxial with the bag opening. The collar generally has two opposite side edge parts, an upper edge part, and a lower edge part with the upper edge part having a handle portion by which the dust container is pulled out of the vacuum cleaner.

Dust containers of the type mentioned above are previously known, see for instance, EP 362624. The bags are usually made of paper whereas the collar is made of a comparatively stiff cardboard material. Traditionally, the design of a dust container has been based on the type of vacuum cleaner model. Thus, the shapes of dust containers change from one model to a later model. This has resulted in a rich variety and number of dust containers in which the shape and the size of the collar are designed differently depending on how the collar actuates different functions of the vacuum cleaner. This is very unsatisfactory for the consumers who have difficulties in finding the right dust container in a shop as well as for the retailers who are forced to store a large number of different dust containers.

This invention provides a dust container that can be used for several of the vacuum cleaner models that exist on the market and for new vacuum cleaner models that are produced. This is achieved by a dust container having a bag of filtering material connected to a collar, which has a collar opening mainly coaxial with the bag opening through which air flows into the bag. The collar has two opposite side edge parts, an upper edge part and a lower edge part with the upper edge part being provided with a handle portion by which the dust container is pulled out of the vacuum cleaner; and the collar close to the upper edge part has at least one tab extending sideways of the side edge parts and several recesses positioned at the upper or lower edge part.

An embodiment of the invention will now be described with reference to the accompanying figures in which:

FIG. 1 is a perspective view of a dust container according to an embodiment of the invention;

FIG. 2 is a plan view of a first layer of the collar that is a part of the dust container shown in FIG. 1;

FIG. 3 is a plan view of a second layer of the collar; and

FIG. 4 is a plan view of a third layer of the collar.

The dust container as shown in Figs. 1-4 comprises a bag 10 of air permeable material whose opening is covered by a collar 11 of comparatively stiff material, for instance, cardboard or plastic. The collar 11 comprises three layers that are partly glued together. The first outer layer 12 is the outwardly facing side, the second layer 13 is an intermediate layer, and the third layer 14 is an inner layer to which the bag is fastened. The collar has an inlet opening 15 through which the dust-laden air flows into the dust container. The inlet opening is partly covered by a flexible membrane 16, which is placed between the second and third layers that are glued together.

Referring to Fig. 2, the first layer 12 is a mainly rectangular plate 40 with a mainly oval opening 17 surrounded by several tongues 12a separated from the remaining part of the plate by a circular bending or tear off line 12b. The plate is provided with sideward and upwardly extending tabs 18 near the upper edge of the plate and on each side of a symmetry line S. The tabs 18 are connected to the plate by upper edge bending lines 19 and each tab 18 has a tab recess 18a. At the lower edge of the plate 40 and on each side of the symmetry line S, there are also two lower edge recesses 20.

As shown in Fig. 3, the second layer 13 comprises a plate-shaped central or guillotine element 21 and two identical but mirror-inverted elongated edge portions 22 that are placed at each side and close to the central element 21. The central element has a circular opening 23 whose diameter mainly corresponds to the longest diameter of the opening 17 in the first layer. In the finished state of the collar, the central element 21 is not glued to the other layers.

An upper part 24 of the central element 21, serving as a handle or grip part, is provided with an opening 24a. The central element upper part 24 has a width that mainly over-bridges the distance between the upwardly extending tabs 18 of the first layer when the layers are placed on top of one another. The upper part 24 continues into lugs 25 that extend sideways at each side of the symmetry line S and into a main part 26, which is provided with the opening 23. The lower side ends of main part 26 have sideway extending tabs 27 on each side of the symmetry line S, which cooperate

with the edge portions 22. Moreover, at the lower edge of the main part 26 and on each side of the symmetry line S, there are two main part recesses 28 that are placed such that they overlap the lower edge recesses 20 of the first layer when the layers are placed on top of one another.

The elongated edge portions 22 each comprise an upper portion 29, whose side edge serves as a guide for the main part 26 of the central element, and an L-shaped lower portion 30 that joins the main part recess 28. Thus, abutment portions 31 and 32 are formed for the sideway-extending tabs 27 of the central element. In the finished state of the collar, the elongated edge portions 22 are glued to the first and third layers.

The third layer 14, as shown in Fig. 4, comprises a mainly rectangular plate 41 with a circular opening 33. The opening 33 has approximately the same shape and size as the central element opening 23 of the second layer and is partly covered by the flexible membrane 16. The plate 41 has two circular recesses or openings 34 arranged near its lower edge and at each side of the symmetry line S. These circular recesses 34 are placed such that when the collar is finished, they are situated below the lower edge recesses 20 of the first layer and main part recesses 28 of the second layer, respectively. Centrally located between these circular recesses 34, there is a center recess 35 extending from the lower edge of plate 41. In the finished state of the collar, the third layer 14 on the side provided with the flexible membrane 16 is glued to the edge portions 22 of the second layer, and the edge portions 22 are glued to the first layer 12.

The dust container operates in the following manner. When the dust container is inserted into the vacuum cleaner, the collar slides into guides arranged in the dust container chamber in the vacuum cleaner. This movement may be limited in some vacuum cleaner models by the lower edge of the collar meeting an abutment surface at the lower portions of the guides or in other models by the outwardly extending tabs engaging the upper portions of the guides. Since the tabs are bendable, the collar fits in such vacuum cleaners where the cover for the space by the collar is normally prevented from closing the space. The upper and lower edge recesses 18a, 20, 28, 34, and 35 of the collar also allow the collar to be inserted in such vacuum cleaners where parts extending into the dust container chamber normally prevent containers without such recesses and openings from being used.

While the invention has been described with reference to a specific embodiment, various changes may be made and equivalents may be substituted for elements thereof by those skilled in the art without departing from the scope of the invention. In addition, other modifications may be made to adapt a particular situation or method to the teachings of the invention without departing from the essential scope thereof. The present invention herein is not to be construed as being limited, except insofar as indicated in the appended claims.

CLAIMS

1. A dust container comprising: a bag (10) of filtering material having an opening through which air flows into the bag, the bag is connected to a collar (11) having a collar opening (17,23,33) mainly coaxial with the bag opening, the collar is provided with two elongated, opposite, mainly parallell outer side edge parts, an upper edge part and a lower edge part, the upper edge part is provided with a handle portion (24) by which the dust container is pulled out of the vacuum cleaner **characterized in** that the collar close to the upper edge part is provided with at least one tab (18) extending sideways of the side edge part and several recesses are positioned at the upper or lower edge part.

2. A dust container according to claim 1 **characterized in** that said tab (18) is connected to the collar by an upper edge bending line (19).

3. A dust container according to claim 1 or 2 **characterized in** that the collar opening is at least partly surrounded by at least one flexible tongue (12a).

4. A dust container according to claim 3 **characterized in** that the collar opening is mainly oval and that the flexible tongue (12a) is connected to the collar by a mainly circular bending line (12b).

5. A dust container according to any of the preceding claims **characterized in** that the collar comprises three layers (12, 13, 14) of comparatively stiff material, and a part of an intermediate layer (13) serving as a guillotine element (21) can be moved such that it closes the collar opening of the dust container, and the handle portion (24) is arranged at the guillotine element (21).

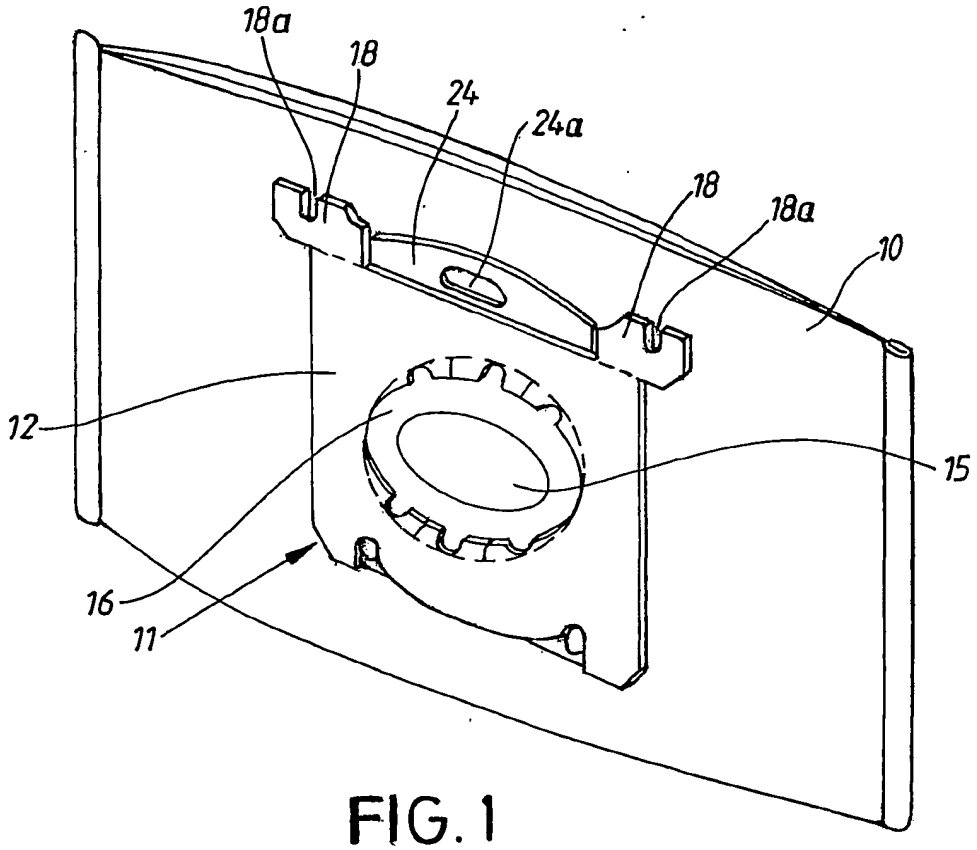
6. A dust container according to any of the preceding claims **characterized in** that the collar is provided with a symmetry line (S) and that the collar at the lower edge part and at said symmetry line (S) is provided with a first recess (35).

7. A dust container according to claim 5 **characterized in** that the handle part (24) in a non-blocking position of the guillotine element (21) is placed between the tabs (18).

8. A dust container according to claim 6 **characterized in** that the first recess (35) is arranged in an inner layer (14) to which the bag is fastened to the collar.

9. A dust container according to claim 6 **characterized in** that the collar is provided with a second recess and a third recess (20, 28, 34) each arranged at one side of the symmetry line (S) and at the lower edge part.

10. A dust container according to any of the preceding claims **characterized in** that at least one tab (18) is provided with a tab recess (18a).


18a
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24a
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18a
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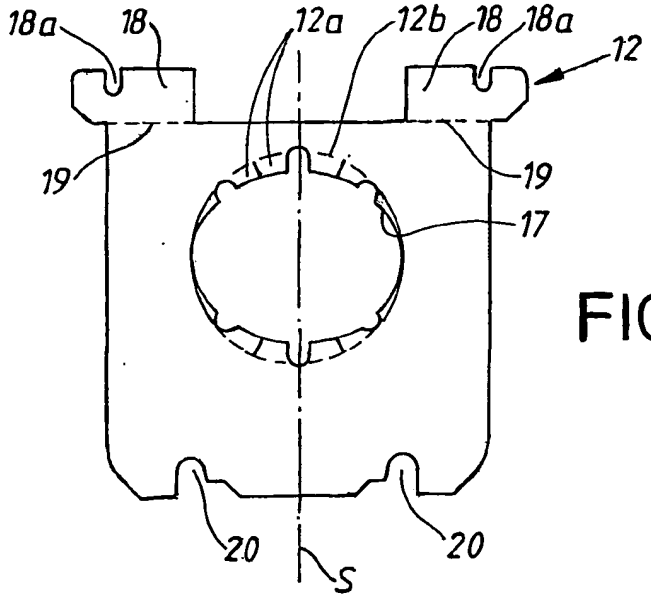
FIG. 1


18a
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12a
12b
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18a
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17
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S

FIG. 2

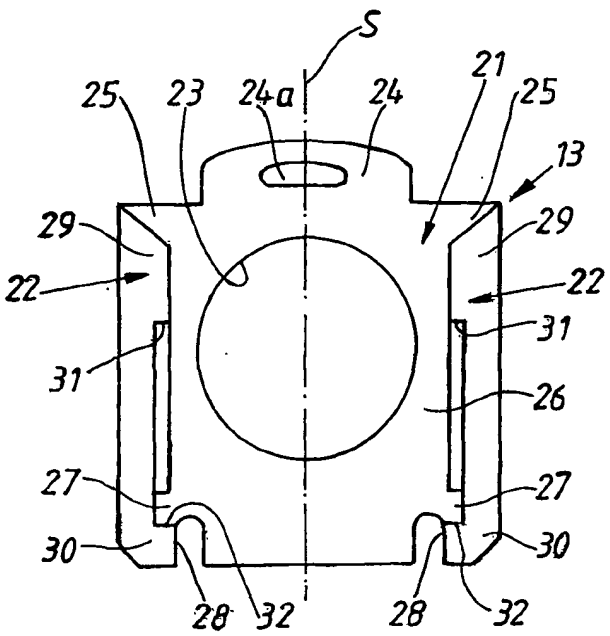
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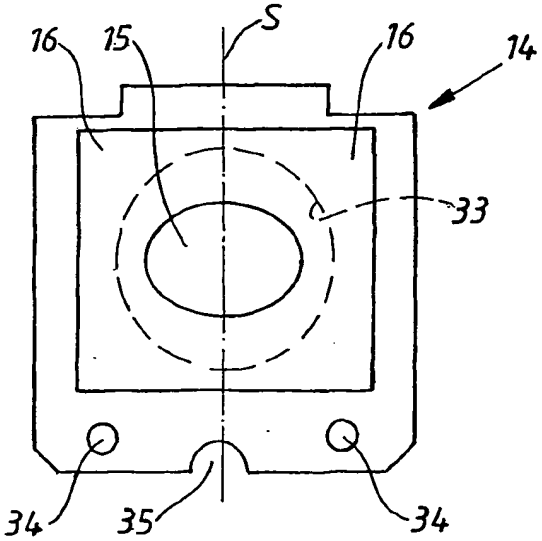
FIG. 3


S
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14
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34
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34

FIG. 4

INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE 01/01960

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: A47L 9/14
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: A47L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-INTERNAL, WPI DATA, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5472465 A (SCHMIERER), 5 December 1995 (05.12.95), figure 10, abstract -- --------	1

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
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Date of the actual completion of the international search	Date of mailing of the international search report
10 December 2001	10 -01- 2002
Name and mailing address of the ISA/ Swedish Patent Office Box 5055, S-102 42 STOCKHOLM Facsimile No. +46 8 666 02 86	Authorized officer Jan-Axel Ylivainio / JA A Telephone No. +46 8 782 25 00

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INTERNATIONAL SEARCH REPORT

Information on patent family members

06/11/01

International application No.
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5472465 A	05/12/95	DE 4339297 C	22/09/94
		SE 505195 C	14/07/97
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